STATE OF NEW JERSEY

The HIGHWAY DEPARTMENT

A Report for 1944

SPENCER MILLER, JR.
State Highway Commissioner

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To the Governor and the Legislature
of the State of New Jersey:

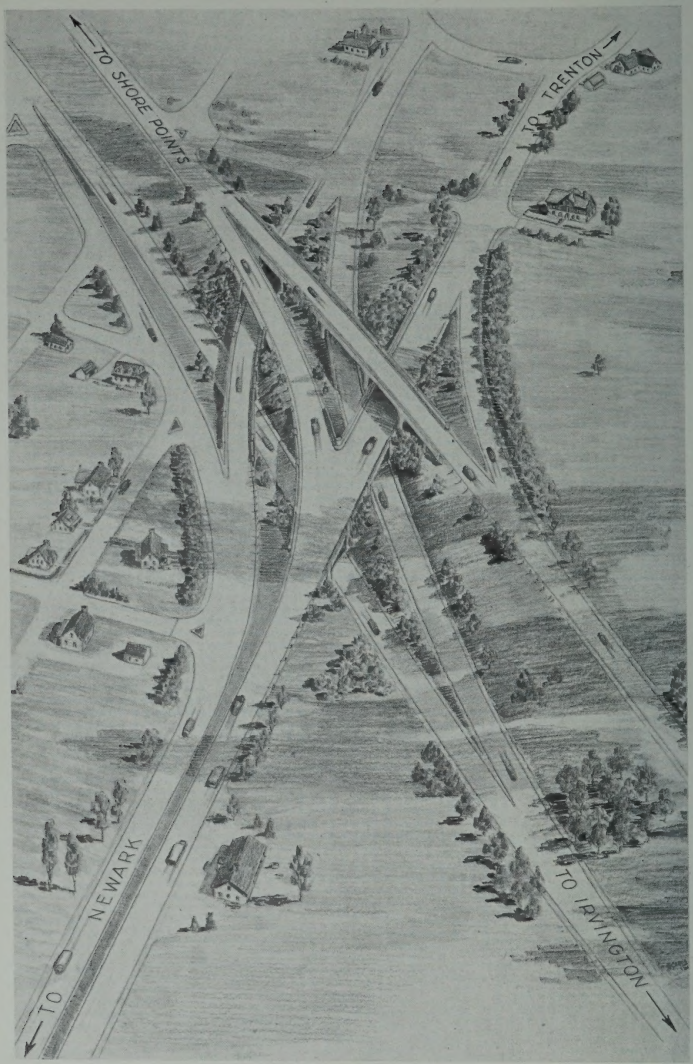
I am submitting the Annual Report of the New Jersey State Highway Department for the year 1944. There is included a statement of revenues and appropriations made by the Legislature from January 1, 1944, to June 30, 1945, to cover the change in the fiscal year of the Department.

For the third successive year this report is presented in a condensed form for the information of governmental officials and the general public.

The full report may be consulted in the New Jersey State Library or at the offices of the Department in Trenton.

Respectfully submitted,

State Highway Commissioner.



A modern solution of the intersection problem! Junction of the proposed Route 4 Parkway and Routes 25 & 35, Woodbridge Township, N. J.

FUTURE TRANSPORTATION IN NEW JERSEY ON FREEWAYS AND PARKWAYS

The people of no other state are faced with highway transportation problems comparable to those which confront the residents of New Jersey. The ever-increasing use of the motor vehicle, which accounts for over nine-tenths of all peacetime passenger movement on New Jersey streets and highways, and ever-increasing freight movements have brought about an intolerable condition of highway congestion, especially in the state's urban areas.

This in itself would be sufficient to call for a vast construction program of new highway transportation facilities, but New Jersey's problem goes far beyond this.

New Jersey is the corridor to the Atlantic Seaboard. Over its highways must pass the great industrial and commercial traffic of this region, as well as that flowing in from the west. At either end of the state are New York and Philadelphia, the first and third largest cities of the nation with combined metropolitan populations of over 14 million—more than one-tenth of the entire country.

The fourth smallest state in area, and the second most densely populated, New Jersey ranks fifth in industry. Over 1,700,000 are employed in her varied industries from aircraft to mining.

New Jersey's seashore resorts, world famous for their unparalleled recreational facilities, serve as a magnet for millions of visitors annually.

Diverse Traffic Demands

This combination of geographic location, limited area, industrial concentration, density of population and natural recreational facilities, combine to create enormously complex and diverse traffic demands. As far back as 1927, the scope and complexity of these demands was realized in part. At that time the Legislature enacted a comprehensive state highway development plan.

Unfortunately, however, the complete fulfilment of the plan

was interrupted by the unprecedented economic depression of the Nineteen-Thirties. The inadequate construction programs of the last decade have left a large number of important "missing links" *in a plan designed to operate as a complete unit.* This is especially true in the northern metropolitan area.

The lack of vital transportation arteries thus anticipated by the Legislature compels large volumes of industrial, commercial, urban, inter-city and recreational traffic to use existing city streets and local roads. These already are inadequate for their own community needs. The result is an intolerable traffic congestion and strangulation of communication that are leading to deterioration and decay.

Tendencies in this direction are already indicated by the diminishing population within several of the northern metropolitan communities. For example, from 1930 to 1940, the aggregate population of Elizabeth, Hoboken, Irvington, Jersey City, Newark, Passaic and Union City, in which live more than one-quarter of the people of New Jersey, actually decreased nearly five per cent, whereas the population in the remaining parts of the state increased six per cent as a result of more adequate transportation facilities.

It is an open secret that because of the failure to meet adequately the transportation needs of the state, and particularly the metropolitan area, great industries have for some time been considering moving to less densely populated areas in other parts of the country.

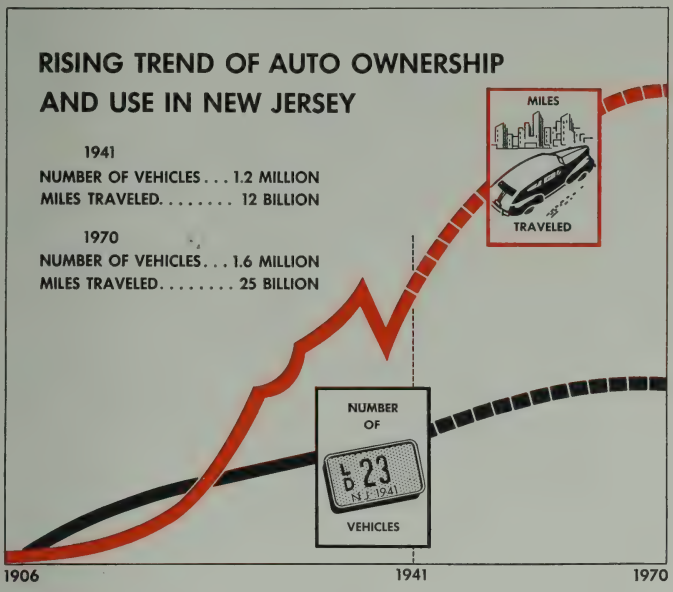
Further, hundreds of thousands of New Jersey residents have been unable to take advantage of the state's own unparalleled recreational areas, because of the lack of vital transportation arteries within the state.

If New Jersey is to maintain its present industrial standing —if its urban areas are not to suffer from blight and decay, and its natural recreational facilities are not to deteriorate— *bold remedies must be applied NOW!*

The Future

Drastic as is today's traffic congestion problem, it is overshadowed by conditions which New Jersey will be called upon

to face in the next 25 years. Conservative estimates indicate that the present registration of 1,200,000 motor vehicles will increase by an additional 400,000 by 1970, and that traffic will more than double within the same period, increasing the present 12 billion vehicle-miles annually to 25 billion.



FREEWAYS AND PARKWAYS THE SOLUTION OF NEW JERSEY'S TRAFFIC CONGESTION

The time has arrived to provide for the traffic demands of today, as well as those of the future. Very few existing streets and roads are capable of efficiently handling large volumes of traffic. Only through the application of freeway and parkway design can New Jersey overcome its highway transportation difficulties, which are resulting in huge losses to motorists and industry, and great loss of life, time and property values. Fifteen years ago this loss was estimated at $1,000,000 daily

in the entire New York metropolitan region. Today, with many more vehicles in use, the daily loss has greatly increased.

The United States Senate Special Committee on Post-War Economic Policy and Planning, in analyzing the factors contributing to modern traffic congestion and the resulting economic losses, recently said:

"Today the city and its environs constitute the most critical areas in highway transportation. For while urban highways must provide the circulatory system without which no city can survive, failure to recognize the basic role of this system in the conduct of industry and community living is dooming city after city to economic strangulation.

"A book entitled 'Can Our Cities Survive?' contains this interesting illustration of why, without drastic steps to provide adequate transportation, the answer may be 'no'. In Los Angeles, from First to Tenth Streets on Broadway, the progress in transportation since 1910 has been as follows:

Then: 10 minutes and 20 seconds by horse and buggy.
Now: 14 minutes and 12 seconds by automobile.

"The Public Roads Administration has aptly expressed the consternation of both highway engineer and motorist:

"When one observes the countless impediments that embarrass the movement of twentieth century traffic through the eighteenth century streets—one wonders how long it will be—before complete congestion will result."

> In New Jersey, on Route 25, tests show that in periods of peak traffic it frequently requires two hours to travel 20 miles between Woodbridge and Jersey City; with many motorists reporting as much as four hours.

"Other tests of vehicle operating costs have been made to measure the cost of congestion and inadequate highway and street design. One such study reveals that the cost of making four or five complete stops per mile on the streets of downtown Boston increased gasoline consumption 50 percent over what it would have been in the absence of congestion. It was estimated that no less than $18,000 per mile per year was being

wasted on the streets of Boston because of this extra gasoline cost alone. If the broader aspects of the cost of urban congestion are considered, it is apparent that the loss of time and the inconveniences involved in city driving represent liabilities of the highest order.

"Congestion and inadequate design on rural highways are also the cause of inordinately high costs of motor vehicle transportation. In New England, the modern Merritt Parkway was constructed parallel to the old Boston Post Road. The presence of 116 traffic lights on a 48-mile section of the post road caused an average of 41 stops per vehicle, or nearly one a mile. It is estimated that the parkway, on the other hand, providing a free flow of traffic, would permit more than double the average of speed of travel on the post road, at the same gasoline cost. Specifically, from Pelham Manor, N. Y., to Milford, Connecticut, is 55 miles by the Merritt Parkway and 53 miles by the post road. The trip by parkway can be made at 52 miles per hour at the same gasoline cost as the trip by the ordinary highway at 25 miles per hour, and the saving in time is 40 minutes."

Freeways and Parkways—What They Are

Throughout America the problem of traffic congestion has been met by the construction of vast networks of modern freeways and parkways. These new arteries virtually free existing local streets and roads from congestion and accidents, and handle large volumes of traffic safely and expeditiously.

Forward-looking urban communities such as New York, Los Angeles, St. Louis, Chicago, Detroit and Cleveland have resorted to the construction of freeways and parkways as the solution of congestion problems similar to those facing New Jersey.

The neighboring states of Pennsylvania and Connecticut have long since realized the economic value of freeways and parkways, such as the Pennsylvania Turnpike and the Merritt Parkway.

Broadly defined, freeways and parkways are thoroughfares with no cross street intersections at grade, no traffic signals,

Outmoded Highways of Today

URBAN

RURAL

DISADVANTAGES OF THIS TYPE

Produce "Ribbons" of uncontrolled development
Cross traffic and driveways
Capacity decreases with developments alongside
Opposing streams undivided—accident and confusion factor
Unattractive

Freeways and Parkways of Tomorrow

URBAN

RURAL

FREEWAY AND PARKWAY ADVANTAGES

Highway "sterilized" against side developments
No cross traffic—access limited to chosen, designed locations
Permanently retains original capacity
Center divider safeguards traffic, reduces headlight glare, etc.
Permanently attractive

metropolitan area, east of the Hudson river, the rate of population growth in this region increased three times over that of northern New Jersey.

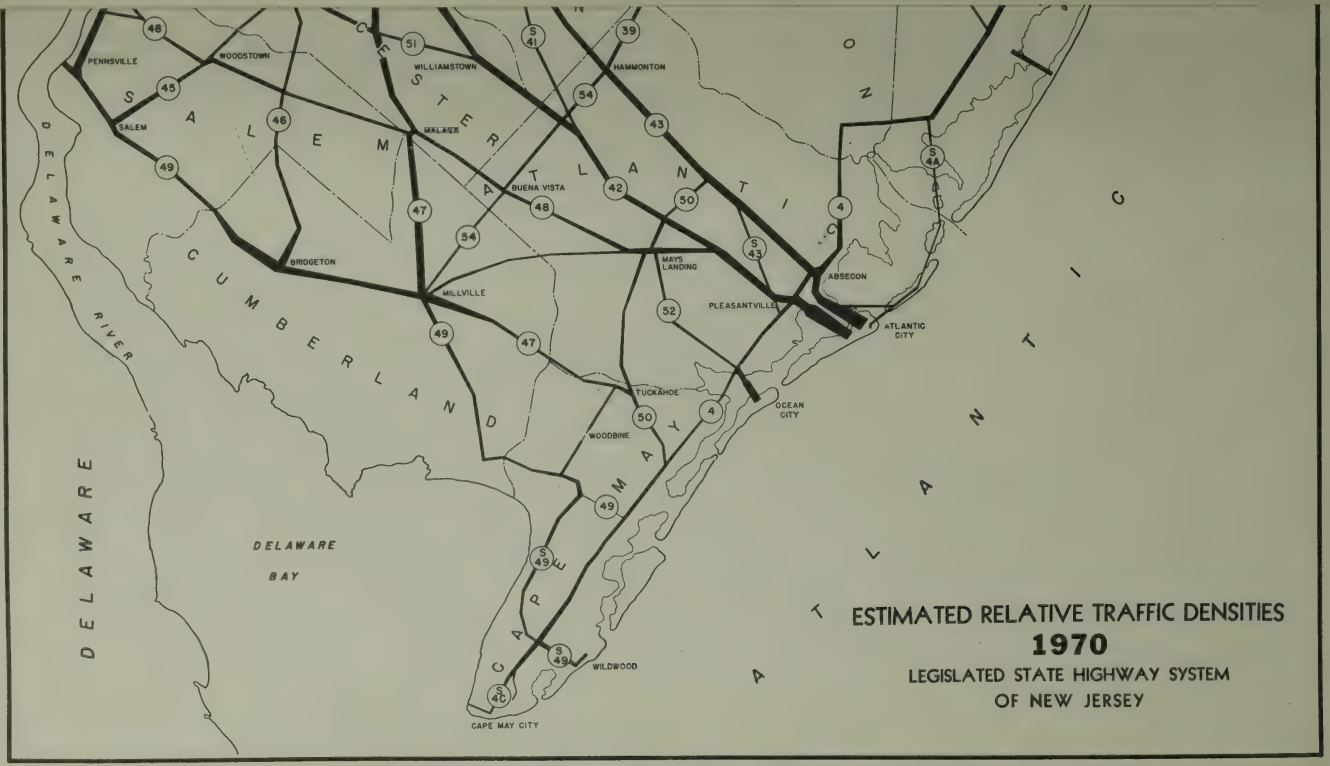
There is no doubt that excellent parkway access from the suburban areas of Nassau and Westchester Counties, to the commercial centers of New York City, has been an important influence in the increase of the volume of residential construction in these areas in contrast to the suburbs of northern New Jersey.

New Jersey's Future

The future welfare and prosperity of New Jersey will depend on how wisely and expeditiously a system of modern freeway and parkway development is carried out. The way has now been cleared for their construction through the enactment of recent legislation. The plans laid down today will affect the development of the state for generations to come.

New Jersey is on the verge of its greatest era of industrial, commercial, residential and recreational expansion, provided vitally needed transportation arteries are made available.

Today's chaotic traffic congestion is a challenge. Never have New Jersey's transportation needs been more pressing, or the potentialities of a rational and diversified highway development program more attractive.


PENNSVILLE
WOODSTOWN
SALEM
BRIDGETON
MILLVILLE
WILLIAMSTOWN
HAMMONTON
BUENA VISTA
MAYS LANDING
ABSECON
PLEASANTVILLE
ATLANTIC CITY
OCEAN CITY
TUCKAHOE
WOODBINE
WILDWOOD
CAPE MAY CITY
SALEM
CUMBERLAND
CAPE MAY
ATLANTIC
DELAWARE RIVER
DELAWARE BAY
ESTIMATED RELATIVE TRAFFIC DENSITIES
1970
LEGISLATED STATE HIGHWAY SYSTEM
OF NEW JERSEY

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NEW YORK
PORT JERVIS
MILFORD
SUSSEX
SUSSEX
PASSAIC
BERGEN
SUFFERN
ROSS CORNER
NEWTON
SPARTA
BLAIRSTOWN
PATERSON
DELAWARE
HACKETTSTOWN
NETCONG
WARREN
MORRIS
WASHINGTON
CHESTER
MORRISTOWN
EASTON
PHILLIPSBURG
CLINTON
HUNTERDON
SOMERSET
SOMERVILLE
NEWARK
JERSEY CITY
HOLLAND TUNNEL
LINCOLN TUNNEL
GEORGE WASHINGTON BRIDGE
ELIZABETH
NEW YORK
STATEN ISLAND
FRENCHTOWN
FLEMINGTON
NEW BRUNSWICK
RINGOES
LAMBERTVILLE
PRINCETON
MIDDLESEX
MONMOUTH
HIGHTSTOWN
FREEHOLD
ASBURY PARK
TRENTON
MERCER
OCEAN
BURLINGTON
LAKEWOOD
LAKEHURST
PENNSYLVANIA
PHILADELPHIA
PALMYRA
CAMDEN
HADDONFIELD
BURLINGTON
BRIDGEPORT
BERLIN
GLOUCESTER
CAMDEN
ATLANTIC
PENNS GROVE
MULLICA HILL
WOODSTOWN
WILLIAMSTOWN
HAMMONTON
BARNEGAT BAY
PENNSVILLE
SALEM
MALAGA
SALEM
BUENA VISTA
ATLANTIC
BRIDGETON
MAYS LANDING
ABSECON
MILLVILLE
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LEGISLATED STATE HIGHWAY SYSTEM
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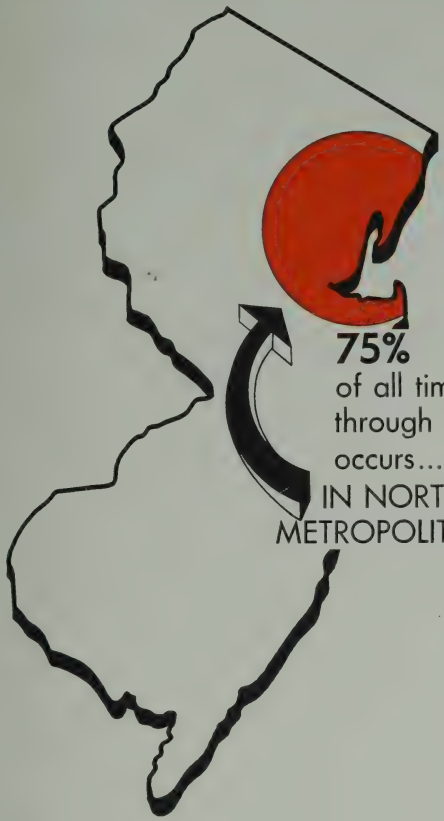
FOCAL POINT OF NEW JERSEY'S TRAFFIC CONGESTION



OPERATIONS

CONSTRUCTION

The unprecedented war production program to meet large scale military operations prohibited the undertaking of any important projects on the strategic military network, except those of a critical nature.

However, after complying with necessary formalities, approval was obtained to proceed with the improvement of Routes 24 and 24-N in Warren County, approaching the Delaware River Toll Bridge between Phillipsburg and Easton. This project will also provide a better facility to the adjacent free bridge, as the present route over Morris Avenue in Phillipsburg is very narrow, with a 14 per cent grade at one point. Plans provide for dual construction, with a 32-foot roadway on each side of a centre safety island. This new construction will replace the existing narrow 20-foot pavement of sharp curves and heavy grades, which is in poor condition and rapidly deteriorating.

Traffic on these bridges averaged 28,500 vehicles per day in 1941, with a peak daily traffic of over 43,000. A large amount of military transport uses these crossings, which also serve many war industries in the area. The toll facility also serves heavy inter-state traffic.

Route S-3

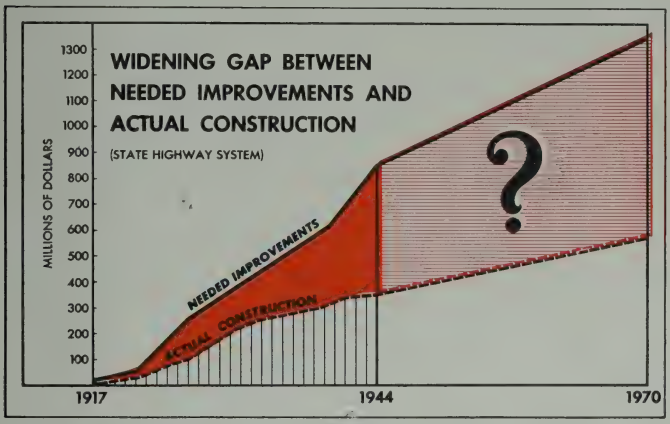
Approval was also obtained to place the remaining work under contract to complete the section of Route S-3 crossing the Hackensack Meadows in Bergen County, between Route 2 in Rutherford and Route 3 in East Rutherford.

One contract comprises the construction of viaduct approaches on each end of the Berry's Creek-Erie Railroad viaduct, to take the place of embankment approaches because of instability of the sub-surface material which developed during the construction.

Another contract includes paving the uncompleted portions and construction of a bridge at the Route 3 intersection in East Rutherford. This will be completed by August, 1945.

Survey and Plan Development

The general curtailment of construction activities permitted the concentration of engineering and design forces on the preparation of plans for new projects. Operations are progressing on 49 active projects, and fifty per cent of the survey, design and preparation of plans and specifications for them is completed.



Of these, plans for 14 projects, estimated cost $9,350,000, have been submitted to the Public Roads Administration under the federal post-war program. Other projects have had to be deferred because of a shortage of engineers and designers.

Construction Personnel

The budget request of the Construction Division for the ensuing fiscal year called for an increase in personnel of 240 employees over the present force of 275, not including 91 employees on leave. The requested force of 606 employees is considered the minimum necessary to perform a continuing yearly construction program of 17 to 20 million dollars.

In the years 1928 to 1931 inclusive, a force of 742 was required to produce an average yearly construction program of $21,000,000. In the period from 1936 to 1940 inclusive, a continuing average yearly construction program of $8,718,000

required an average force of 400 man-years, not including 17 key supervisional employees, or 46 men per million dollars of construction, a relatively larger force than was required in the 1928-1931 period.

This increase in personnel to perform a comparable value of work can be attributed in part to the increasingly complex nature of highway design. Further, it is often necessary to develop alternate lines of location and schemes of design, in order to arrive at the most desirable and economical method of construction.

A greater amount of research is also being undertaken, to develop better features of design intending to prolong the life of highway facilities and to promote safety. Although the cost of engineering may appear high, the net result is considerable savings. Through improved investigations, study and design, a construction saving of $100,000 can be effected in a $1,000,000 project. Although this involves a greater percentage in engineering costs, the important fact is that better facilities result, both as to operational features and durability.

The additional force requested included 75 men to increase traffic investigation and analysis—a factor which did not command the attention in the 1928-1931 period that it does today. Traffic engineering is now one of the foremost functions in the development of locations and designs for highway facilities.

The Department's entire engineering force is now concentrated on plan preparation. As construction begins in the post-war period, engineers must be taken from plan development to handle construction, supervision, inspection and construction engineering. This transition will occur progressively until the full program is under contract, at which time the entire existing force of field engineers and inspectors will be engaged. It will, therefore, be necessary to increase engineering and designing personnel so that plans for new projects can be developed to maintain a continuing program.

Designing is a bottleneck in plan production and unless the matter of engineering personnel is given urgent attention,

design requirements and plan development will suffer greatly in the post-war years.

Competent engineers and designers are very scarce and generally in great demand. This situation will become more acute because of the demand for engineers by contracting and engineering firms in the post-war period.

War Damage to State Routes

At the urgent request of the Navy Department, the Governor by proclamation in 1943 permitted vehicle loads in excess of those established by law, to expedite the transportation of materials for the construction of the Naval Ammunition Depot at Earle in Monmouth County.

Truck loads in excess of 70,000 pounds gross were transported over state routes in the vicinity. In the spring of 1944 serious damage developed on Routes 4 and 34 between Cheesequake and Colts Neck in Middlesex and Monmouth Counties, with the possibility that damage might appear on Routes 35 and 36.

The Department notified the Public Roads Administration of its intention to file a claim in compensation of this damage under the Defense Highway Act, which provides for relief in such instances. Subsequently, funds were allotted by the federal government for the proper maintenance and repair of the damaged portions of these routes. This work is being performed by the Maintenance Division.

Close observation of the action of the pavement and subbase under this abnormal trucking was made by the engineering and research staff, and valuable data secured. Upon recommendation of the Department, the proclamation of the Governor was rescinded without prejudice to the war effort and for the protection of the state highway system.

Construction Operations

Construction was under way on 37 miles of highway improvement, 17 stream bridges, three railroad and five highway grade separations. Contracts covering 29 miles were

completed, as were also 12 stream bridges, two railroad and five highway grade separations.

Six military access roads contracted previous to 1944 were also completed. In addition, seven projects were placed under contract, three of which will carry into 1945.

MAINTENANCE

The increasing tempo of military activities in 1944, made it imperative that extraordinary provision be made for the snow removal and ice control program. The importance of these operations was particularly emphasized by the military authorities.

The snowfall in 1944 increased approximately 50 per cent over the previous year. It is interesting to note, that although the total average state-wide snowfall was 27.7 inches, the maximum snowfall for the year was 60.2 inches in Sussex County, which is over double the average, and the average for several points in North Jersey was in excess of 53 inches.

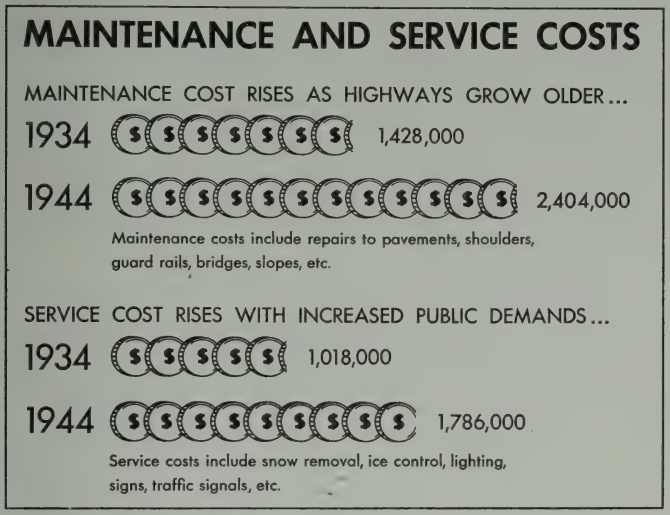
Analysis of winter safety costs again emphasizes the growing importance of ice control, this operation accounting for over 50 per cent of the combined winter safety control program, which totaled $754,000.

Maintenance of System

To maintain the roadbed and right of way of the system averaged $1,039 per mile, an increase of $104 over the previous year. The principal increase was in maintenance and repairs on main pavements, due principally to a 50 per cent greater use of bituminous materials. Because of the easing of wartime restrictions on the use of these materials, it was possible to proceed with numerous deferred maintenance operations, which had to be curtailed to comply with government regulations restricting the use of bitumens.

Pavement failures due to elements of uncontrolled expansion continued to be a major maintenance problem. Considerable effort is being expended by the Department's research staff to arrive at a satisfactory solution of this matter.

The maintenance of drains, ditches, shoulders and rights of way on the system also increased. This, too, in a large measure resulted from a greater use of bituminous materials.



Maintenance forces were also called upon to aid municipalities along the Atlantic coast in clearing up the damage resulting from the September 14 hurricane. Labor, supervision and equipment, both hired and departmental, were furnished for the removal of sand, comprising some 400,000 cubic yards; the cutting up and removal of trees, the clearing of other debris which had fallen into roadways, and various miscellaneous operations.

Considerable overtime was incurred and numerous commendatory letters were received from local governmental bodies and other organizations for the assistance rendered.

Resurfacing of Concrete Pavements

An additional 19 miles of resurfacing was performed on some of the older concrete pavements. Many pavements on the system are now in excess of 20 years of age. Further, they

have carried exceedingly large volumes of military transport and other heavy war-time traffic, and as a result are showing distinct evidences of wear and tear. Unless something is done to preserve them, they will shortly require reconstruction.

Resurfacing promises to add a number of years of thoroughly satisfactory service to these older pavements at a fraction of the cost of their reconstruction. In addition, in a number of instances, the resurfacing has resulted in providing a roadbed with riding qualities very much superior to the original pavements.

It is anticipated that this operation will become a factor of increasing importance in maintenance programs in ensuing years.

Mud-Jacking

The Department cooperated with the Army, Navy and defense organizations in the adjustments of pavements and floor systems by mud-jacking. Despite manpower shortages it was possible to complete every project undertaken.

One of the most important consisted of drainage and major pavement replacement on Routes 4 and 34 between Cheesequake and Colts Neck where these main highways form an important connecting link with the Naval Ammunition Depot at Earle in Monmouth County. Its completion permitted a tremendous volume of military traffic to flow in and out of the depot without interruption.

The Department was one of the first to adopt the method of mud-jacking concrete pavements and has carried out extensive operations. Recently new and improved methods have been introduced into this specialized operation. Previously, any good topsoil which provided an easy handling mixture was considered satisfactory. Many of the soils used, however, produced a mix which did not satisfactorily set up and were easily displaced. It has now been determined that by carefully selecting the proper soil, not only will the setting up of the mixture be accelerated, but, in addition, strengths result which will rival those of low grade concrete mixtures.

While this improved method has not reached its ultimate

development at present, there is no doubt that a material advance has been made which will result in greater permanence and decreased costs.

Signs and Markings

War-time restrictions on the use of cast iron again curtailed the program to establish permanent markings on all routes. This cannot be carried forward, however, until restrictions on this material are lifted.

Traffic line markings totaled over 7,000,000 lineal feet, the cost rising slightly over the previous year due to the increased cost of material.

Encroachments

The abatement of some 7,438 encroachments on highway rights of way continued actively throughout the year. To date over 3,727 have been abated or there has been a pledge of abatement. While not all of the objectives of the program were reached, the ultimate success of the project seems assured in the not too distant future.

Roadside Improvements

Manpower shortages seriously hampered efforts to preserve the standards of roadside improvements. One exception was the inauguration of a project on Route 29 from Mountainside to North Plainfield, known as the "Blue Star Drive."

On recommendation of the New Jersey Continuation Committee for Roadside Improvement, Route 29 between North Plainfield and Chimney Rock, was designated as a test section for experimental purposes, to determine what can be performed in the way of a general improvement of the highway and roadside by cooperative effort between abutting owners, local clubs, municipal authorities and the Department.

A tentative program was adopted outlining the operations to be performed by the various parties.

STATE AID

Construction of municipal roads with state aid funds was generally curtailed. However, the War Production Board did

remove restrictions on projects not exceeding $10,000, which permitted some operations to proceed.

In addition various municipalities received approval to carry out construction exceeding this amount, where the project had a direct connection with the war effort. This permitted the completion of 87 miles, amounting to $568,330.

Funds have now been allotted from previous years for 164 projects, estimated at $4,813,000 which could not be undertaken because of war regulations. The statute provides that these funds be certified to the State Treasurer for investment in short term government securities. They remain, however, to the credit of the various municipalities, and may be withdrawn when they are in a position to proceed with operations.

State Aid Maintenance

Under Title 27 of the Revised Statutes, $525,000 was available as the state's share for the maintenance and repair of municipal roads previously built with state aid.

The various counties submitted schedules totaling $744,492. The state's share was $670,132, of which $458,718 represented 1944 funds and $211,414 from previous allotments. This was for the maintenance of 859 miles of roads already constructed, at an average cost of $866 per mile.

Winter Damage

The Legislature, by resolution, appointed a committee to "make a study of the damage done to county and municipal roads of this state during the winter of 1944 and of the extent to which this damage is unusual, and of the possible cost involved in repair and recondition attributable wholely to the unusual amount of damage done."

The committee forwarded a questionnaire to each county and municipality asking the extent of damage to their roads, and has received the following information:

Additional cost of snow removal and ice control	$ 615,655.98
Additional cost of maintenance and repairs ...	1,871,206.92
Additional cost of reconstruction	2,654,492.75
Total	$5,141,355.65

The committee is planning an apportionment of $500,000 to the various counties and municipalities, when approved by the Legislature.

ELECTRICAL

Over 29,800 openings were made of the 35 movable span bridges on the system. This operation was carried out despite the fact that it was impossible to obtain any critical materials for repairs to operating machinery or control equipment. However, all routine maintenance schedules were maintained.

It is significant to note that, due to New Jersey's long coastline and the relatively large number of navigable streams, the state operates the largest number of movable span bridges in the country.

Lighting

This program reached a maximum in 1941 with 12,870 units in service. By 1943 it had decreased to 9,956, with a considerable reduction in candle power to comply with the war curtailment program.

Lighting has now been restored to normal operation at locations where traffic warranted, and the units in service increased to 10,257, equivalent to the continuous lighting of 400 miles of highways.

Traffic Signals

To facilitate traffic movements, 162 signals were operated at important intersections and bridges on the system. Of these approximately 60 were of the so-called "normal out" type. The principal advantage of this signal is one of economy, as current is consumed only when it is in operation.

It has been, however, confusing to motorists, and has not complied with the State Code of Signal Installation and Operation. To expedite traffic movements at important intersections, all "normal out" signals were converted to "normal green" operation.

LAND ACQUISITIONS

The policy of the use of department appraisals in land acquisitions continues to prove effective. The percentage of lands purchased without resorting to condemnation—84.4 per cent—compared favorably with former years.

Some 259 parcels were acquired, of which 198 were by agreement, 27 by condemnation awards or settlements after awards, with 34 condemnations pending. Nearly half of all condemnations were due to involved titles or inability to locate owners. A considerable percentage of pending cases on which condemnation was authorized, due to disagreement with owners as to price, will undoubtedly be settled by compromise without resorting to actual litigation.

The lands acquired are located in all 21 counties, on 134 sections of the system. Preliminary estimates of the cost of right of way acquisition were also made on 50 alternate lines for post-war projects, plans for which are nearing completion.

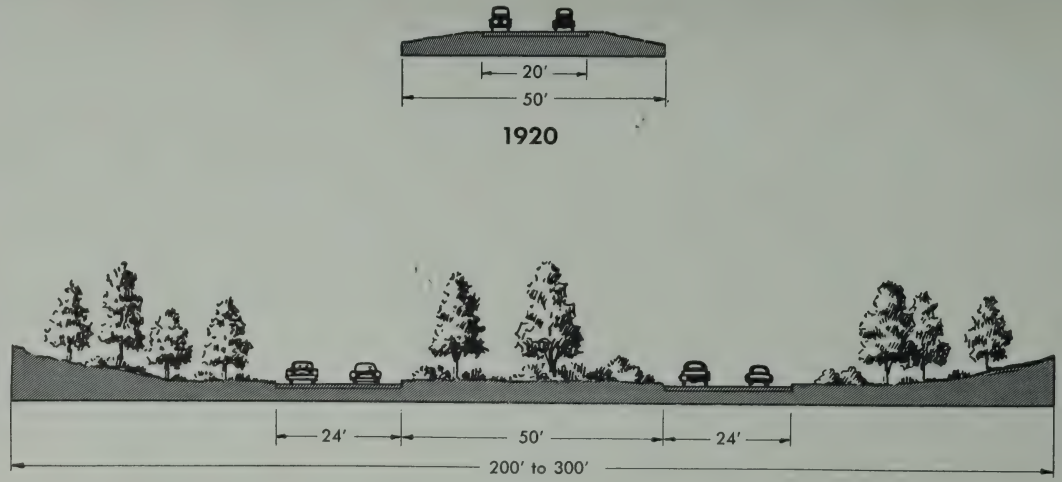
A high standard of courtesy, consideration and fairness has been maintained in all dealings with property owners and their representatives.

Effect of Modern Design on Land Acquisitions

The problems of land acquisitions to meet the demands of modern highway construction have become increasingly more complex. The relation between location and design has continued to assume a larger role in view of the ever-increasing cost of property. While the majority of lands acquired have always been partial acquisitions, damage to remaining property in the past, was usually negligible, compared to the present.

As the rural districts were made more accessible by hard surfaced all-weather roads, property owners generally recognized the benefits which accrued from these improvements and dedicated the portions of their lands needed. Further, many were disappointed if new highway improvements did not pass through their properties.

Prior to 1927, about one-third of all real estate acquired for state highway improvements was donated, but this condition no longer exists. Today, rural residents do not welcome



INCREASE IN RIGHT OF WAY WIDTHS ON MAIN HIGHWAYS

the construction of modern highways through their lands, especially if deep depressions or high embankments sever their properties and make farming more difficult. The result is that owners think now of damages sustained, rather than benefits received.

Land Acquirement in Urban Areas

Similar conditions have developed with respect to urban property. Formerly, when a residential street became a main highway, and a strip of land for widening was acquired, it was usually conceded that the unit front foot value of property, on a newly widened and improved road, would be at least equal to its value on the existing street. Today, however, heavily traveled highways, with their varied and at times indiscriminate roadside businesses, are detrimental to residential values. The prices paid reflect these damages where the land acquired is taken from property restricted to residential uses.

Further, these damages are not offset to any extent, because the value of unrestricted property in certain locations was probably increased for business purposes. This involves an element of speculation in the majority of such instances, and owners should be, and are given, the benefit of any reasonable doubt as to future developments. Damages of this type are usually either non-existent, or of a minor nature, when highways constructed through built-up areas have a right of way wide enough to include marginal roads on both sides. In this respect, depressed roadways for through traffic, with marginal roads conforming to the grades of existing streets, are the least damaging in urban areas, but their additional cost tends to offset the saving in right of way expenditure.

Northern Metropolitan Area

The relation between highway location and design is a broad one, and there are many factors which make right of way acquisitions expensive and complicated. A recent study conducted in connection with the development of a main highway through the northern metropolitan area, shows the effect of modern design on right of way costs.

The "Blue Star Drive" (N. J. Route 29), between Mountainside and North Plainfield in Union and Somerset Counties, designated by the State Legislature as a living tribute to New Jersey's sons and daughters of World War II.

This project in its 11-mile length included 30 highway grade separations, a viaduct and a traffic circle. The embankments and slopes for the approaches to grade separations have a detrimental effect on property bordering the highway and the intersecting streets, except where marginal lands are acquired for freeways and parkways. Although freeways and parkways, when properly designed, require considerably more land than a dualized highway, far greater value results from the investment. In place of paying damages for remaining lands, the state acquires them for roadside improvement at a small additional cost, and such roads become a sound investment from an economic standpoint.

Blue Star Drive

The plan recently adopted by the State Legislature, designating a portion of Route 29 (U. S. 22) between Mountainside and North Plainfield, to be known as the "Blue Star Drive" is a progressive and forward move. The plan provides for the naturalistic planting of dogwood trees as a living tribute to New Jersey's sons and daughters of World War II. It is hoped that similar and more extensive roadside improvement projects will be authorized with the establishment of a freeway and parkway system.

Meanwhile, experience in other states indicates that while right of way costs for these modern transportation arteries require a large expenditure, the actual cost for such projects on new alinement is less than might be expected. This is true despite the fact that they impose restrictions on bordering lands that remain in private ownership.

SPECIAL OPERATIONS

Railroad Grade Crossing Eliminations

Under the Federal Aid Highway Act of 1944, aid will be provided for the elimination of railroad grade crossings at important highway intersections with the provision that the railroads shall not pay in excess of ten per cent of the cost. For the purpose of selecting crossings on which this aid may

be applied, a study is under way of the priority of the need of elimination.

This involves a listing of all crossings in the state, with sufficient rail and road traffic to warrant inclusion in the program. Some 438 crossings have been listed in the general order of their importance, and pertinent data tabulated, for submission to the railroad companies involved for comments and recommendations.

Federal Aid Secondary System

This will be a new network of highways, on which Federal Aid secondary apportionments may be used. It will be a system, second only in importance to the Federal Aid Primary System, which includes practically all of the existing state highway routes.

The allocation of mileage for each county will be made according to a formula conforming to certain regulations of the Public Roads Administration, and subject to its approval. The selection of specific routes in each county will be made by the Public Roads Administration, the Department and respective county officials.

Several formulae for mileage apportionment have been prepared, based on rules outlined by the Public Roads Administration, one of which was selected as best fitting conditions in New Jersey. On this basis the roads have been tentatively selected for inclusion in the system, and at the close of the year this selection had been completed in practically all of the counties.

Origin and Destination Survey

One of the most important new techniques for the analysis of traffic is the Origin and Destination Survey to determine where and to what extent people travel and commodities are transported. Specifically, it applies to travel and transportation on highways. The purpose is to obtain information on travel trends.

Studies have been made of the need for such a survey in the metropolitan urban area extending approximately from Paterson southerly to the Union-Middlesex county line, and

from the Hackensack Meadows westerly to the Orange Mountains.

Conferences have been held with many important public bodies, including the Public Roads Administration, the Port of New York Authority, Department of Economic Development, Central Planning Board of Newark, and county officials. The survey will be undertaken in the late summer of 1945.

Loadometer Tests

These tests which involve the stopping, weighing and measuring of trucks, have been performed in 1940, 1942, 1943 and 1944. Five locations in the northern and five in the southern section of the state were selected in 1940, and have been used in subsequent years.

Generally, the tests are made in the early part of August. During this period all trucks, loaded and empty, passing the station are stopped and weighed by driving the right front and rear wheels onto a portable scale and recording the loads. In the past year 1,422 trucks were weighed and measured and the records tabulated.

Monumenting of Highways

An urgent need along public highways is the permanent monumenting or marking of right of way lines. The policy of the Department has been to erect monuments designating these lines, but through the years they have been destroyed by improvements and developments. With the inauguration of a freeway and parkway system, the need for monumenting will become increasingly important.

Further, the carrying through of this program on all future property acquired will eliminate disputes and unnecessary legal proceedings on the part of the state and adjacent owners, and confine maintenance operations within proper limits.

A thorough study has been made of this question, including practices and policies in other states, a number of which have specific legislation requiring the monumenting of right of way lines. As a result, provision for the marking of base lines is now included in all construction plans, and it is proposed to

carry forward the monumenting of existing right of way lines on the system as rapidly as conditions permit.

FINANCIAL

To effect a change in the fiscal year of the Department to conform to the state fiscal year—July 1st to June 30th, the Legislature made an appropriation for an 18-month period from January 1, 1944, to June 30, 1945.

Revenues and Appropriations

The estimated revenues for the 18-month period ending June 30, 1945, of $69,007,027.85, with funds recaptured from 1943 appropriations totaled $71,937,370.72.

There was deducted from this various amounts transferred to the General State Fund totaling $28,081,205.47, leaving available for appropriation $43,856,165.25. Of this $19,770,000 was appropriated to the Counties and Municipalities and $10,022,167.50 to the State Highway Department.

The statement of Revenues and Appropriations shows receipts on account of estimated revenues for the 12-month period ending December 31, 1944, of $48,869,792.16.

ESTIMATED REVENUES

JANUARY 1, 1944 — JUNE 30, 1945

Estimated Revenues:		*Estimated Revenue to June 30, 1945*	*Receipts on Account of Estimated Revenues as of Dec. 31, 1944*
Unappropriated Balance forward from Previous Year		$9,824,527.85	$9,728,322.92
Motor Vehicle Fees, Fines, etc.		36,100,000.00	19,166,474.50
Motor Vehicle Inspection Fees		562,500.00	519,374.00
Tax on Motor Fuels		21,750,000.00	15,768,047.13
Bus Excise Tax		120,000.00	81,027.09
Miscellaneous Revenue		650,000.00	676,203.65
Total Estimated		$69,007,027.85	$45,939,449.29
Balance 1943 Maintenance Program		342,639.51	342,639.51
Balance W.P.A. Program		2,956.23	2,956.23
Balance 1942 Construction Program		98,894.70	98,894.70
Uncommitted 1943 Appropriation to Match Federal Aid for Construction		2,000,000.00	2,000,000.00
Balance 1943 Electrical Installation and Maintenance Program		145,106.27	145,106.27
Balance by cancellation of Signal Contract		60,000.00	60,000.00
Balance 1943 Bridge Operation Program		27,634.96	27,634.96
Balance 1943 Purchase of Plant & Equipment Program		78,224.96	78,224.96
Balance 1943 Administration, Engineering Inspection and Administrative Cost of Acquiring Right of Way		144,776.94	144,776.94
Balance of Statutory Increases and War Adjustments, Highway Department		30,109.30	30,109.30
		$71,937,370.72	$48,869,792.16
Less Transfers:			
Trans. to General Fund for Gen. and Educational Deficiencies	$2,646,583.13		
Amount Reserved to continue War Adjustments for Employees for period commencing July 1, 1944	490,000.00		
Board of Commerce and Navigation	77,000.00		
Guaranteed Bank Loans to Veterans of the Present War	5,000,000.00		
Police and Firemen's Pension	1,000,000.00		
Balance held as reserve for Post-war needs, or to meet expenditures of an emergency nature	18,867,622.34	$28,081,205.47	
Total Revenue and Uncommitted Balances available for Appropriation and Expenditure		$43,856,165.25	

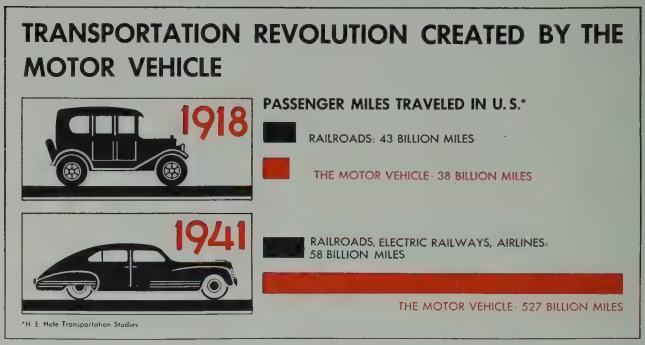
APPROPRIATIONS

JANUARY 1, 1944 — JUNE 30, 1945

State Treasurer Debt Service:			
State Highway Bonds	$6,217,621.00		
Institution & Agencies Bonds	884,537.50		
			$7,102,158.50
County Aid			13,470,000.00
Municipal Aid			6,300,000.00
State Highway Department:			
Administration, Engineering, Inspection and Administrative Cost of Acquiring Right of Way:			
General Administration	$294,475.00		
Highway Planning—General	35,580.00		
Laboratory	253,837.50		
Construction Division	1,748,400.00		
State Aid Division	356,850.00		
Real Estate Division	296,400.00		
Legal Division	82,875.00		
		$3,068,417.50	
Maintenance of State Highway System		5,207,000.00	
Operation of Bridges		591,000.00	
Electrical Installation and Maintenance (Lighting)		833,250.00	
Institutional Roads and Approaches		247,500.00	
Plant and Equipment		75,000.00	
			10,022.167.50
Motor Vehicle Department			2,838,101.88
Motor Fuel Tax Division			445,845.00
Department of State Police			830,141.35
Board of Commerce and Navigation			747,000.00
Delaware River Joint Toll Bridge Commission			167,441.62
State Employees Retirement System			351,270.00
Delaware and Raritan Canal Commission			13,000.00
Compensation Awards (other than Highway Department)			7,500.00
Teachers Pension and Annuity Fund			1,456,539.40
War Adjustments			105,000.00
TOTAL			$43,856,165.25

THE FEDERAL AID HIGHWAY ACT OF 1944

The Federal Aid Highway Act of 1944 is an important milestone in highway history. Appropriation by Congress of a billion and a half dollars in the first three years of the post-war period will be about twice as large as any previous peace-time appropriation since the original Federal Aid Law was enacted in 1916.



Under it the states are made the administrative unit for the distribution of funds. This is a policy which the United States Public Roads Administration has developed over the years; it is reaffirmed in the new act. Various proposals made before Congress to set up a direct relation between the federal government and the 3,000 odd counties in the United States, were not adopted. The principle of the sharing of costs between the federal and state governments on a basis of parity will be continued.

Unemployment Cushion

The act provides for an enlarged program of needed highway construction in the three post-war years to relieve unemployment in the reconversion from a war to a peace economy. To achieve this a broad expansion of the functions of the state highway departments is contemplated.

By making the various highway departments the representative agents of all the states' interests, the whole adminis-

trative structure for the operation of the act will be placed upon them.

Matching of Federal Grants

The new policy will have three main purposes:

First, the development of uniform standards and a system of inspection of roads built under Federal Aid.

Second, the assurance that Federal Aid primary or secondary highways in urban areas will share such aid as is provided under the new formula.

Third, the development in each state of a comprehensive and integrated plan of highway development.

Under these provisions New Jersey will receive approximately $9,433,000 per year for each of the three years as follows:

$2,864,000 for the Federal Aid System in rural or urban areas.

$1,041,000 for secondary roads in rural areas.

$5,528,000 for the Federal Aid System in urban areas.

New Jersey must, therefore, appropriate $8,400,00 for each of the three post-war years to receive any benefits under the act, plus one-third the cost of the right of way, which will vary annually according to the projects selected.

The funds for secondary roads must be matched by the counties, and this requires no legislative action.

Diversion Penalty

The act carries the explicit provisions of the Hayden-Cartwright Act of 1934, which provides that if there are diversions of motor user revenues in any state after July 1, 1945, not in effect on June 18, 1934, such state may be liable to a penalty not to exceed one-third of the total amount of the federal grant. This is of serious concern to New Jersey because of the use of these revenues to meet the general expenses of government. It is hoped that some way will be found to comply with the provisions of the act to avoid the serious consequences of the penalty.

Urban Congestion

One of the act's important provisions is that for the first time recognition is given to the problem of urban traffic congestion, one of transportation's most pressing needs. In New Jersey more than half of the state's total grant or $5,528,000 is appropriated annually for urban areas.

PASSENGER TRANSPORTATION ON NEW JERSEY STREETS AND HIGHWAYS*

BY TAXI	13,000,000 PASSENGER MILES	0.1%
BY STREET CAR	50,000,000 " "	0.2%
BY BUS	599,000,000 " "	2.8%
BY PRIVATE CAR	**20,400,000,000 PASSENGER MILES**	**96.9%**

*IN 1941

There are within New Jersey 52 cities, 23 towns, and three villages, a large number of which are urban areas of 5,000 or more population. There are also some 500 townships and boroughs, a substantial number of which are included as urban areas under the decennial census of 1940. The prospect of federal-state aid in these urban areas opens up new and far-reaching possibilities in vital highway improvement needs.

Aid for Cities

For several years many state routes in New Jersey terminated at the boundaries of the larger municipalities. Of later years, however, practically all of these routes have been carried through them. These arteries through urban areas and cities carry the heaviest traffic and are in the greatest need of relief. This has long been recognized and finds substantial expression in the new act.

The state of New Jersey will also occupy a closer relationship with the counties by the extension of a program of co-operation extending back over a half century. Unlike previous legislation, the state is not only the dispenser of funds to the counties, but a trustee of federal grants which are to be expended on county road systems.

It is quite likely that this state will occupy the role of guarantor of the counties' contributions to make the federal participation fully effective. A proposal is now being considered for additional aid to the counties so that they may be able to match the federal grant.

New Functions

The Department will prepare a map showing the exact boundaries of those municipalities or urban areas of 5,000 or more population on which Federal Aid can be appropriated. The federal census of 1940 will be used, so that uniform statistics will prevail throughout the nation.

The decision as to what constitutes an urban area within each state will rest with each highway department, subject to approval by the Public Roads Administration.

Another important function will be the determination of the trans-state routes within each state that will comprise the Interregional System.

Interregional Highway System

The act provides for the designation of a national system of interstate highways of approximately 34,000 miles, extending through every state and comprising those routes which most directly join regions and major cities.

The routes embodied in the report of the National Interregional Highway Committee of January, 1944, were general in character, and laid out on the basis of connecting every city in the nation of 100,000 population or more, and many cities of 50,000 and upwards.

The routes designated in the report were recommendations only, and the various highway departments will now determine what routes are to be selected in the several states. Although this system represents only about one per cent of the country's entire highway and street systems, it is expected to serve not less than 20 per cent of the total traffic. It will extend into and through the nation's larger cities, where the greatest congestion occurs.

Three such routes extend across New Jersey from the northern metropolitan area towards the cities of Philadelphia, Harrisburg and Scranton in Pennsylvania. The particular locations will be subject to agreement between the state and federal governments.

Improved Standards

Appropriate standards of design and construction will also be established. It is expected that these interregional routes are to be built to higher construction standards, so that free and safe movement will be afforded throughout the system. Because of their importance, the states and the federal government will strive to complete them at the earliest possible date.

Employment Levels

The control of the states in the development of an integrated program of highway construction will also extend to the intricate but important question of stabilizing the construction industry within each state. The purpose is to assure a continuity of employment in the construction industry in the post-war era by releasing projects for public highway building at a time when they do not conflict with private construction or home building.

Under the proposal of the Public Roads Administration, the various highway departments will record statistics on employment levels of highway construction within each state. With the increase of a construction program by 30 per cent, or a possible reduction of 30 per cent, a spread of 60 per cent can be maintained in which to exercise this stabilizing function.

As a further aid to stabilizing construction during the boom and depression phases of the business cycle, the price index is destined to play an important part. With these economic indices the highway departments of the country will be expected to decide when to release and when to withhold contracts.

Future Highway Development

The new act launches an enlarged program of highway construction, and places new and important responsibilities upon the state highway departments in the development of a comprehensive system of highways, both within the several states and between the states. It heralds a new day for the transportation industry in America.